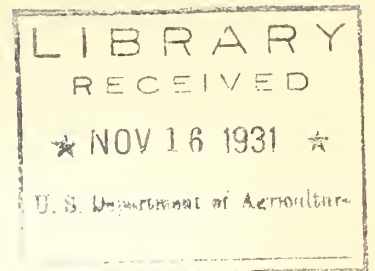


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STEM RUST AND BARBERRY NEWS

Issued by

Division of Barberry Eradication

Volume II

November 2, 1931

Number 13

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Bureau of Plant Industry  
U. S. Department of Agriculture

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A "RUST-SPORE VIEW"

A few minutes after leaving Washington for the West by plane one crosses high wooded ridges and is able to peer down through the clouds at grain fields growing in the comparative isolation of the small mountain valleys of Maryland and Pennsylvania. On seeing how these fields are hemmed in by the mountains, it is easy to understand how in similar valleys of southwestern Virginia eradication of the rust-spreading native Berberis canadensis can give direct rust relief to grain crops. That there is work to be done in these valleys is indicated by the serious rust epidemics which occurred this season.

But while we are thinking this over our motors have been droning on, we have dropped from 9,000 to 2,000 feet altitude, and Pittsburgh has been left behind. Soon we are over the more open Ohio country with its villages, cities, woodlots, streams, and ever-present fields of small grain. We cross directly over the barberry chemical eradication plots near Maumec. Knowing that a year ago more than 6,000 barberry bushes were harbored in the 25-acre woodlot below, there is a satisfaction in the thought that the cool rain, through which we are driving beneath a low ceiling, is falling on dead barberries, killed by several very promising new chemical treatments which are being developed by the chemical eradication crew.

Crossing Ohio, Indiana, Illinois, and Iowa, the sun has set by the time we approach Des Moines. As we fly on through the night, however, we are left with a vivid mental picture of the central portion of the barberry eradication area. Woodlots changing in size and character - fence rows with varying amounts of vegetation - river bottoms presenting their own eradication problems - and always within sight the innumerable fields of small grains.

Before leaving Washington we knew that in 1930 Ohio alone grew approximately 3,500,000 acres of oats, wheat, barley, and rye; Indiana about 3,600,000 acres; Illinois 7,200,000 acres; and Iowa 7,100,000 acres. It takes a "rust-spore view" to make the picture complete. When from 12,000 feet one sees the countless fields of grain pushing close in around the masses of green shrubbery which indicate towns or farm woodlots, he realizes it is of the utmost importance to keep barberries out. Unrestricted spread of barberries by birds and other agencies would endanger entirely too many individual grain fields.

With an aerial view, the potential danger of barberries to standing grain is tremendously emphasized. We remember that with this grain we have been seeing farm houses and these mean families dependent on the land. The Census summaries tell us that in the four States named above there are approximately 832,000 farms on which more than 2,900,000 people live. Extending this line of thought to the entire thirteen States of the barberry eradication area, and referring again to the census, we are impressed with the fact that in these States we have a total rural population of 7,400,000. These people and many others living in cities, as do those which we sailed over as we passed by the Board of Trade Tower in Chicago, are greatly concerned with anything which affects quality and cost of producing small grains. Common barberries as a source of damage to small grains, which, judging from our "rust-spore view", are grown on practically all of these farms, must clearly be eradicated and kept out of these States.

But the moon is under a cloud and we are circling a black field, wing lights on, the motors throttled down and spitting flame, and as we bank over, the headlight beams from Mr. Yount's car below, placed to assist in the landing, mark the close of the trip.

F. C. M.

#### EPIDEMIOLOGY

(Reported by Dr. E. C. Stakman)

Examination of exposed slides is now complete. Spores were first trapped near Texas overwintering centers on May 9. In the winter wheat area of the central Mississippi Valley, spores were trapped in significant numbers on May 15-18 and May 27-28. There was no general shower of stem rust over spring wheat areas until June 7-9 and this was not a heavy fall, very few spores reaching Fargo, N. Dak. But on June 17-18 a heavier shower fell and a few spores were trapped at Fargo. On June 22 and also on June 25-28 more spores were caught at Fargo. Allowing an incubation period of seven to twelve days we have the dates of appearance of primary infection in the sections indicated. Copies of spore-trapping results are now being sent to Leaders and others who made the exposures, together with other in-



formation that may be of interest in connection with the results.

Considerable progress has been made in the physiologic-form surveys of wheat and oat stem rust. So far 482 identifications have been made of Puccinia graminis tritici, comprising 13 different forms. Five of these were widely distributed, as in 1929 and 1930, and are listed in the order of their prevalence: Form 49, 38, 36, 11, and 21. All five forms were prevalent in Texas, while forms 38 and 49 were also common in Mexico. Although the survey is not yet complete, results so far available indicate that form 49 decreases somewhat in prevalence as one goes northward in the Mississippi Valley, and form 36 increases somewhat. In the oat rust survey, 292 collections have been identified, consisting so far solely of forms 2 and 5, of which form 2 is predominant.

From the studies that Mr. Butler has been making it appears that conditions in southern Texas have been unfavorable on the whole for fall infection of grains and grasses. From early August through the month of September it was uniformly warm and dry in the San Antonio area, according to Mr. Butler on October 3, with only scattered showers elsewhere in the State. Some of the volunteer grain that came up in August still persisted, but vigorous growth of volunteer wheat that Mr. Butler found in August apparently was surviving only as scattered plants in some fields. Furthermore, results of germination tests made during the first part of September were largely negative. Stem rust spores collected on straw taken from straw stacks in Oklahoma and in the San Antonio area of Texas failed to germinate. Spores from grasses in the San Antonio area also did not germinate, and although a small percentage of the material from grasses in northern Oklahoma germinated and was used for inoculation no infection resulted. Ripe Elymus in the San Antonio area rusted in some cases where it had grown near infected wheat fields, but Mr. Butler was unable to find any rust on Elymus that was still green. North winds, in addition, have been neither pronounced nor continued.

Recently the writer visited the Dominion Rust Research Laboratory at Winnipeg, where they are obtaining some beautiful results on various phases of rust investigations. Results of the work on hybridization are particularly striking. (Oct. 24)

#### EASTERN REGION

Ohio - 8 East Broad Street, Columbus - Harry Atwood

Since October 17 four field men have been conducting intensive second survey in Noble and Salem townships in Auglaize County. These men are making their headquarters in St. Marys during the progress of the survey in these townships.

A three day meeting of all extension workers of the College of Agriculture was held at Ohio State University beginning October 21. The Leader attended a part of these meetings.. Several worth while contacts were made with county extension agents and other extension workers during these sessions.

Our informational activities through the schools last winter are continuing to bring results. Recently a National Rust Busters Club medal and certificate were presented to a Newark, Ohio high school boy for finding and reporting a planting of common barberry.

Last winter Paul Edwards, the science teacher in the Newark High School, presented a lesson on black stem rust control by eradicating common barberry. As an incentive to the pupils he offered an additional 10 points toward the final science grade to each student finding and reporting a new planting of common barberry. As a result of this activity three pupils won bronze medals and 14 bushes have been found.

Mr. Popham was a visitor in our office during October 21 and 22. (Oct. 27)

#### Indiana - Furdue Experiment Station Annex, West Lafayette - W. E. Leer

Plans are being made to begin the intensive school program in Morgan County early in November.

One squad of four men is working in an area of escaped bushes in Switzerland County near Patriot. The work in the area of escaped bushes near Loogootee was completed October 9.

Mr. Wright who has been employed as an agent for the past several seasons, located an area of escaped barberries in Putnam County last week. The size and extent of the area has not been determined. Mr. Wright stated that it would take 1,000 pounds of salt to treat the bushes observed in the five minutes he spent in the area. This is the second area of escaped bushes found by Mr. Wright since resigning July 31.

Plans are being made to send a series of form letters to the various chapters of the Izaak Walton League during the winter months. The first of the series of letters will be sent about November 5. (Oct. 20)

#### Illinois - Post Office Building, Urbana - Robert W. Bills

Mr. Turner spent 6 days investigating leads that had accumulated in the barberry eradication office. Of 19 leads, 6 proved to be authentic and 168 bushes were destroyed on the trip.



Two more barberry reports have come from the children at the Port Byron School.

Circular letters are being prepared to send to each of the teachers who were furnished lesson plans and literature at the county institutes this fall. It is believed that by again bringing this to their attention, a greater use will be made of the lesson material. The County Superintendents first were sent a copy of the letter for approval, with a request that he furnish a list of his teachers and addresses so the letters could be mailed from this office. The directories have been furnished promptly.

A special follow-up letter will be sent to the teachers of Ogle County. The intensive school campaign was carried on there in the spring of 1931. (Oct. 27)

Michigan - Michigan State College, East Lansing - Francis B. Powers

Eradication activities in Michigan closed for the season when the last squad checked in at East Lansing today. The fall work was very successful, two escaped areas were located and the bushes in them eradicated by the squad remaining on late work.

Mr. McIntyre has completed his visits to the rural schools in Jackson County and will place a demonstration at a community fair sponsored by the Agricultural Department of Bloomington High School in Van Buren County the last of the month. He will assist in the office and field until the Leader returns from his vacation about November 1. (Oct. 24)

Wisconsin - State Capitol Annex, Madison - Vern O. Taylor

Survey work in the area of escaped barberry bushes in Iowa County was completed on October 20 and reports show a total of 11,286 bushes destroyed in an area of approximately 25 square miles. The Leader received several compliments on the work of the crews while talking to farmers of the vicinity throughout the summer and the agents enjoyed working where their efforts were appreciated.

Mr. Harold Cate, squad leader in charge of the labor since September 12, moved his temporary headquarters to Sauk City where he will continue the survey started by Mr. Hendrickson and the laborers last summer. The local help finished the area in Iowa County on the afternoon of October 20 and reported to Sauk City for work on the morning of October 21. Mr. Cate changed his headquarters after working hours and there was no loss of time from the field.

Now that the winter's informational work is under way the writer is taking this opportunity to offer a limited supply of straw showing the red stage of rust to any of the Leaders who may be in need of it.

Mr. Popham was a visitor in Madison on Saturday, October 24.  
(Oct. 27)

#### WESTERN REGION

##### Minnesota - University Farm, St. Paul - Leonard W. Melander

So far October has been a very successful month for barberry activities in Minnesota. Progress has been made along several lines of endeavor. The intensive survey of Dakota County was completed last week. The school campaign in Chippewa County was carried through to completion with the wholehearted cooperation of the county superintendent, Miss Luella Watson. The most interesting result of this campaign was the finding of two locations of barberry bushes (one bush in each) by two boys in the town of Milan. This town was the center of a stem rust area found last summer during the simultaneous rust survey on July 8. A few days later this area was mapped and the town of Milan seemed to be the center. No barberry bushes were found on the farms in the rusted area.

During the past two and one-half weeks we have been using day labor for salting barberries in the Red Wing area of escaped barberries. Over 2,000 bushes have been treated. This area is in Goodhue County where we have awarded 48 medals to boys and girls. (Oct. 22)

##### Iowa - Morrill Hall, Iowa State College, Ames - D. R. Shepherd

The survey plan in Woodbury County has recently been changed to the extent that we are now working out the timbered areas only in the vicinity of known locations of bushes. We are beginning at the center of the planting and working until we run out of territory where bushes are growing. We plan to put two of the men in Greene County following the completion of the work in Woodbury and to send two men out to look up leads that have been reported and to do resurvey work in one of the eastern Iowa counties.

Several plantings of barberries have been found by Mr. Brown who is doing informational work with the rural schools in Benton County. These bushes were found as the result of leads received from the rural school children. Mr. Brown plans to work the city grade schools and high schools after rural schools have been completed. (Oct. 20)

District No. 1 - Post Office Building, Fargo, N. Dak. - E. C. Mayoue

On October 16, District Leader Mayoue returned to headquarters after a two weeks' stay in Montana where he visited field agents conducting informational work in the schools of Fergus and Judith Basin Counties. En route to Fargo he stopped to meet with North Dakota field men carrying on similar activities in three western North Dakota counties.

From Montana he brings the report that favorable weather conditions have aided in speeding up the school visits. As a result, plans are being made to work a third Montana county before the season closes.

Good weather with favorable traveling conditions has prevailed in North Dakota quite generally since informational work was begun in three counties about the first of October. Running somewhat ahead of schedule it is expected that the informational work will have been carried to the 11,000 school children in these counties by the first week in November. As in Montana, weather conditions continuing favorable, plans are under way to extend the informational work into a fourth county.

After the agent visits a school, teaches the story of stem rust and the common barberry and organizes a Rust Buster Club, he closes by asking the children to elect a president who will write a letter to the Barberry Office, Agricultural College in his State (Bozeman for Montana and Fargo for North Dakota). These letters are then forwarded to the District Office. This procedure has been followed to maintain a closer contact with the college in each State and also because it affords a simple and easily remembered address for general use.

Among these are many interesting letters. One president writes informing us that several membership pins have been lost -- "Will you send some more?". Another signs "I remain your little friend." Most ambitious of the Rust Buster Clubs from whom letters have been received is that of the Smart School, Denton, Montana, where it is not to the president, but to the secretary, that falls the duty of caring for the correspondence of the group. Lacking only from the roster of officers is the position of treasurer, for the group has provided itself with president, vice-president, and secretary. Evidently believing that in organization there lies strength, these Rust Busters have appointed four of their members as "field men" -- but probably they are the four with the horses necessary to travel about in Montana. (J.O.R., Oct. 22)

District No. 3 - Agricultural College, Fort Collins, Colo. - E. A. Lungren

Intensive informational activities started October 1 in Colorado. Arrangements were made to work in four counties in this State. Mr. R.S.

Shepherd is working in Weld County and is giving demonstrations in rural schools and high schools. He has been making from three to five schools each day.

The educational program is being received very well and Rust Buster Clubs have been organized in every school thus far visited.

The District Leader has given several demonstrations in Larimer County and as a result of the work in the Big Thompson School, one property of barberry bushes was reported by one of the members of the Rust Buster Club. Members of the clubs are now surveying their farms and it appears that on our second visit to the schools several reports of locations will be given.

In schools where the demonstrations have been given the follow-up work is continued by the teachers. In all cases they have received this material, and have planned to give detailed lessons on black stem rust and barberry eradication. This lesson is given to all students from the 6th to 8th grades. For Smith-Hughes schools we are using the regular job plan as given in Leaflet No. 1, issued by the Federal Board for Vocational Education. (Oct. 20)